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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER
MCLEAN, K

ART UNIT	PAPER NUMBER
2185	

DATE MAILED: 09/11/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

☒ Responsive to communication(s) filed on *Jun 30, 2000*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters,   **prosecution as to the merits is closed** in accordance with the practice under   *Ex parte Quayle* 935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire _____**3**_____ month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-23* _____ is/are pending in the applicat

  Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-23* _____ is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

  ☐ All ☐ Some* ☒ None   of the CERTIFIED copies of the priority documents have been

    ☐ received.

    ☐ received in Application No. (Series Code/Serial Number) _____ .

    ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

  *Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

DETAILED ACTION

1.   The detailed enclosed action is in response to the Amendment submitted on June 28,

2000.

Claim Rejections - 35 U.S.C. § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

3.   Claims 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Satoh et al.

(USPN: 5,999,197).

Satoh discloses a first agent to provide a memory access clock signal to allow the first agent to

access the shared memory (Figure 32, Reference 11-1; C 15, L 53-67; C 16, L 1-6); a second

agent to provide a representation of the memory access clock signal to access the shared memory

in synchronism with the access by the first agent to the shared memory (Figure 32, Reference 11-

2; C 15, L 53-67; C 16, L 1-6).

Claim Rejections - 35 U.S.C. § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-8, 10-12 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Wu et al. (USPN: 5,659,715).

Regarding claim 1, Wu discloses a system comprising a memory (C 7, L 11-27); a first agent

(system controller) adapted to access a first memory portion (C 4, L 58-65); and a second agent

(graphics controller) adapted to access a second memory portion (C 4, L 58-65); wherein the first

portion and the second portion are variable (C 7, L 11-23). Wu does not explicitly disclose a first

and second memory portion comprising a plurality of banks. However, it is common knowledge

in the art for memory to comprise a plurality of banks or blocks. Such as system memory

(DRAM, SDRAM etc.) in a computing system. Wu teaches the concept of dynamically allocating

portions of memory to a first and second agent such that the performance of the memory is

improved. One of ordinary skill in the art would have recognized the benefits of Wu's teachings

and would have been motivated to use the teachings of Wu in a memory comprising a plurality of

banks for the desirable purpose of flexibility and improved performance.

Regarding claims 2-5, Wu discloses a register for to set the number of banks accessible to the first

and second agent (C 9, L 23-52).

Regarding claims 7-8 and 11, Wu discloses a plurality of agents (system controller and graphics

controller)(C 4, L 58-65); a shared asynchronous memory block accessible to each of the plurality

of agents wherein the shared memory block (C 7, L 1-65); a register adapted to partition the

shared memory block into a plurality of partitions, each plurality of partitions being accessible by

a unique group of the plurality of agents (C 9, L 23-52). Wu does not explicitly disclose the

shared memory block comprising a plurality of memory banks. However, it is common

knowledge in the art for memory to comprise a plurality of banks or blocks. Such as system

memory (DRAM, SDRAM etc.) in a computing system. Wu teaches the concept of dynamically

allocating portions of memory to a first and second agent such that the performance of the

memory is improved. One of ordinary skill in the art would have recognized the benefits of Wu's

teachings and would have been motivated to use the teachings of Wu in a memory comprising a

plurality of banks for the desirable purpose of flexibility and improved performance.

Regarding claim 6, Wu discloses the limitations cited above in claim 1, however, Wu does not

explicitly disclose a first and second agent as a digital signal processor. However, digital signal

processors are known in the art for their use in high speed data manipulations used in audio,

communications and other data acquisitions. Wu teachings provide an efficient way of

dynamically allocating memory for two different functions. Clearly it would have been obvious to one of ordinary skill in the art to add a digital signal processor to the teachings of Wu for use in a system requiring high speed data manipulations for the desirable purpose of efficient memory usage.

Regarding claims 10 and 12, Wu discloses the limitations cited above in claim 1, however, Wu does not explicitly disclose a SDRAM . Synchronous memories are well known in the art for operating at high speeds thus decreasing the bottleneck in computing systems associated with slow memory devices. Therefore it would have been obvious to one of ordinary skill in the art to use a SDRAM in Wu's system for increased speed and improved performance.

Regarding claims 20-21 and 23, Wu discloses a method comprising accessing a first portion memory from a first agent (C 4, L 58-65); accessing a second portion of memory from a second agent (C 4, L 58-65); and repartitioning the shared memory on the fly (C 7, L 11-23). Wu does not explicitly disclose accessing a plurality of banks from a first agent and accessing a second plurality of banks from a second agent. Wu teaches the concept of allocating portions of memory to a first and second agent. It is well known in the art that to partition memory into blocks, pages or banks and it would have been obvious to one of ordinary skill in the art to use the teachings of Wu in a memory comprising a first and second plurality of banks for the desirable purpose of flexibility and improved performance.

6.   Claims 14-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable in view

of Satoh (USPN: 5,999,197) as applied to claim 13 above and further in view of Hughes (USPN:

5,784,582).

Regarding claims 14 and 17-18, Satoh discloses the features stated above in claim 13, however,

Satoh does not explicitly disclose the shared memory servicing the first and second agent without

a wait state in between. Hughes does teach this feature (C 3, L 14-21; C 6, L 39-57; C 7). This

feature taught by Hughes improves system bandwidth, thereby, improving the performance of the

system. Therefore it would have been obvious to one of ordinary skill in the art to use the

teachings of Hughes in the system taught by Satoh for the desirable purpose of improved

performance.

Regarding claim 15, Satoh does not explicitly disclose partitioning the shared memory block into

a first block such that the first agent has access to the a first partition and partitioning the shared

memory block into a second partition such that the second agent has access to the second

partition. However, this concept is known in the art for improving performance by providing

simultaneous access to the memory. Therefore, it would have been obvious to one of ordinary

skill in the art to partition the memory in Satoh's system for the desirable purpose of improved

performance.

7.   Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable in view of Satoh

(USPN: 5,999,197) and Hughes (USPN: 5,784,582) as applied to claim 17 above and further in

view of Clayton, IV (USPN: 4,476,527).

Satoh does not disclose the first agent providing the clock signal to the second agent. Clayton

teaches a master controller providing a clock signal to peripheral controller to synchronize the

slower devices to the faster device. Therefore it would have been obvious to one of ordinary skill

in the art to use the teachings of Satoh and Hughes with the teachings of Clayton for the desirable

purpose of synchronization.

Response to Arguments

8.   Applicant's arguments with respect to claim have been considered but are moot in view of

the new ground(s) of rejection.

Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Maesako et al. - JPO - 9-290236/USPN: 6,101,146 - variable memory allocation.

Barnaby et al. - USPN: 6,052,756 - memory management.

Rubinstein - USPN: 5,933,855 - reconfigurable memory.

Dumarot et al. - USPN: 5,463,755 - shared memory system.

10.   Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Kimberly McLean whose telephone number is (703) 308-9592 (e-mail

address: Kimberly.McLean2@uspto.gov). If attempts to reach the examiner by telephone are

unsuccessful, the examiner's supervisor, Eddie Chan, can be reached on (703) 305-9712.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the Group receptionist whose telephone number is (703) 305-9000.

Any formal response to this action intended for entry should be mailed to Commissioner of

Patents and Trademarks, Washington, D.C. 20231 or faxed to (703) 305-9051 and labeled

"FORMAL" or "OFFICIAL". Any informal or draft communication should be faxed to (703)

305-9731 and labeled "INFORMAL" or "UNOFFICIAL" or "DRAFT" or "PROPOSED" and

followed by a phone call to the Examiner at the above number. Hand-delivered responses should

be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

KNM

September 7, 2000

EDDIE P. CHAN
SUPERVISORY PATENT EXAMINER